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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of : Customer Number: 46320  
: Confirmation Number: 2068  
Jeffrey CHASE et al. : Group Art Unit: 2157  
: Examiner: B. Burgess  
Application No.: 10/733,996 :  
Filed: December 11, 2003 :  
For: AUTONOMIC SELECTION OF A REQUEST ROUTING POLICY BASED UPON  
CACHE EFFECTIVENESS

**APPEAL BRIEF**

Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed July 11, 2008, and in response to the Examiner reopening prosecution in the Office Action dated September 23, 2008, wherein Appellants appeal from the Examiner's rejection of claims 7-14.

**I. REAL PARTY IN INTEREST**

This application is assigned to IBM Corporation by assignment recorded on December 11, 2003, at Reel 014802, Frame 0372.

**II. RELATED APPEALS AND INTERFERENCES**

Appellants are unaware of any related appeals and interferences.

**III. STATUS OF CLAIMS**

Claims 1-14 are pending. Claims 7-14 are three-times rejected in this Application, and claims 1-6 are withdrawn from consideration pursuant to the provisions of 37 C.F.R. § 1.142(b). It is from the multiple rejections of claims 7-14 that this Appeal is taken.

**IV. STATUS OF AMENDMENTS**

The claims have not been amended subsequent to the imposition of the Third Office Action dated September 23, 2008 (hereinafter the Third Office Action).

**V. SUMMARY OF CLAIMED SUBJECT MATTER**

1 Referring to Figure 2 and also to independent claim 7, an autonomic request routing  
2 policy selection method is disclosed. In block 210, a contemporary trace footprint experienced  
3 by a coupled server cluster is identified (lines 3-4 of paragraph [0023]). In block 220, a cache  
4 allocation for the coupled server cluster is identified (lines 4-5 of paragraph [0023]). In block  
5 230, at least two sets of hit rate metrics are retrieved, and each set of metrics correspond to a  
6 particular routing policy (lines 5-9 of paragraph [0023]). In block 240, the hit rate metrics are  
7 compared based upon the identified trace footprint and the identified cache allocation to  
8 determine a preferred routing policy (lines 1-8 of paragraph [0024]). In block 250, the preferred  
9 routing policy is selected for use in routing content requests to the server cluster (lines 8-9 of  
10 paragraph [0024]).

11 Referring to Figure 2 and also to independent claim 11, a machine readable storage  
12 having stored thereon a computer program for autonomic request routing policy selection is  
13 disclosed. The computer program comprises a routine set of instructions which when executed

1 by the machine cause the machine to perform the following steps. In block 210, a contemporary  
2 trace footprint experienced by a coupled server cluster is identified (lines 3-4 of paragraph  
3 [0023]). In block 220, a cache allocation for the coupled server cluster is identified (lines 4-5 of  
4 paragraph [0023]). In block 230, at least two sets of hit rate metrics are retrieved, and each set of  
5 metrics correspond to a particular routing policy (lines 5-9 of paragraph [0023]). In block 240,  
6 the hit rate metrics are compared based upon the identified trace footprint and the identified  
7 cache allocation to determine a preferred routing policy (lines 1-8 of paragraph [0024]). In block  
8 250, the preferred routing policy is selected for use in routing content requests to the server  
9 cluster (lines 8-9 of paragraph [0024]).

**VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

1. Claims 7-14 were rejected under 35 U.S.C. § 103 for obviousness based upon  
Mangipudi et al., U.S. Patent Publication No. 2004/0162901 (hereinafter Mangipudi), in view of  
Yang, U.S. Patent Publication No. 2002/0199014 (hereinafter Yang).

## VII. ARGUMENT

1 As is evident from Appellants' previously-presented comments during prosecution of the  
2 present Application and from Appellants' comments below, there are questions as to how the  
3 limitations in the claims correspond to features in the applied prior art. In this regard, reference  
4 is made to M.P.E.P. § 1207.02, entitled "Contents of Examiner's Answer." Specifically, the  
5 following is stated:

(A) CONTENT REQUIREMENTS FOR EXAMINER'S ANSWER. The examiner's answer is required to include, under appropriate headings, in the order indicated, the following items:

...  
(9)(e) For each rejection under 35 U.S.C. 102 or 103 where there are questions as to how limitations in the claims correspond to features in the prior art even after the examiner complies with the requirements of paragraphs (c) and (d) of this section, the examiner must compare at least one of the rejected claims feature by feature with the prior art relied on in the rejection. The comparison must align the language of the claim side-by-side with a reference to the specific page, line number, drawing reference number, and quotation from the prior art, as appropriate. (emphasis added)

18 Therefore, if the Examiner is to maintain the present rejections and intends to file an Examiner's  
19 Answer, the Examiner is required to include the aforementioned section in the Examiner's  
20 Answer.

**THE REJECTION OF CLAIMS 7-14 UNDER 35 U.S.C. § 103 FOR OBVIOUSNESS BASED  
MANGIPUDI IN VIEW OF YANG**

For convenience of the Honorable Board in addressing the rejections, claims 8-14 stand or fall together with independent claim 7.

27 On October 10, 2007, the Patent Office issued the "Examination Guidelines for  
28 Determining Obviousness Under 35 U.S.C. 103 in View of the Supreme Court Decision in KSR  
29 International Co. v. Teleflex Inc.," 73 Fed. Reg. 57,526 (2007) (hereinafter the Examination

1 Guidelines). Section III is entitled "Rationales To Support Rejections Under 35 U.S.C. 103."  
2 Within this section is the following quote from the Supreme Court: "rejections on obviousness  
3 grounds cannot be sustained by merely conclusory statements; instead there must be some  
4 articulated reasoning with some rational underpinning to support the legal conclusion of  
5 obviousness." KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1741 (2007) (quoting In re Kahn,  
6 441 F.3d 977, 988 (Fed. Cir. 2006)).

7

8 Referring to the first column on page 57,529 of the Examination Guidelines, the  
9 following is a list of rationales that may be used to support a finding of obviousness under 35  
10 U.S.C. § 103:

- 11 (A) Combining prior art elements according to known methods to yield  
12 predictable results;
- 13 (B) Simple substitution of one known element for another to obtain  
14 predictable results;
- 15 (C) Use of known technique to improve similar devices (methods, or  
16 products) in the same way;
- 17 (D) Applying a known technique to a known device (method, or product)  
18 ready for improvement to yield predictable results;
- 19 (E) "Obvious to try" - choosing from a finite number of identified,  
20 predictable solutions, with a reasonable expectation of success;
- 21 (F) Known work in one field of endeavor may prompt variations of it for  
22 use in either the same field or a different one based on design incentives or other  
23 market forces if the variations would have been predictable to one of ordinary  
24 skill in the art;
- 25 (G) Some teaching, suggestion, or motivation in the prior art that would  
26 have led one of ordinary skill to modify the prior art reference or to combine prior  
27 art reference teachings to arrive at the claimed invention.

28

1 Upon reviewing the Examiner's analysis, the Examiner appears to be employing rationale (G). If  
2 the Examiner is not relying upon rationale (G), Appellants request that the Examiner clearly  
3 identify the rationale, as described in the Examination Guidelines, being employed by the  
4 Examiner in rejecting the claims under 35 U.S.C. § 103.

5

6 Referring again to rationale (G), as discussed on page 57,534 of the Examination  
7 Guidelines, the following findings of fact must be articulated by the Examiner:

8 (1) a finding that there was some teaching, suggestion, or motivation,  
9 either in the references themselves or in the knowledge generally available to one  
10 of ordinary skill in the art, to modify the reference or to combine reference  
11 teachings;

12 (2) a finding that there was reasonable expectation of success; and

13 (3) whatever additional findings based on the Graham factual inquiries  
14 may be necessary, in view of the facts of the case under consideration, to explain  
15 a conclusion of obviousness.

16

17 Referring to the paragraph entitled "Office Personnel as Factfinders" on page 57,527 of  
18 the Examination guidelines, the following was stated:

19 Office personnel fulfill the critical role of factfinder when resolving the  
20 *Graham* inquiries. It must be remembered that while the ultimate determination of  
21 obviousness is a legal conclusion, the underlying *Graham* inquiries are factual.  
22 When making an obviousness rejection, Office personnel must therefore ensure  
23 that the written record includes findings of fact concerning the state of the art and  
24 the teachings of the references applied. In certain circumstances, it may also be  
25 important to include explicit findings as to how a person of ordinary skill would  
26 have understood prior art teachings, or what a person of ordinary skill would have  
27 known or could have done. Factual findings made by Office personnel are the  
28 necessary underpinnings to establish obviousness.

1  
2       In Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), the Supreme Court set  
3 forth the factual inquiries that are to be applied when establishing a background for determining  
4 obviousness under 35 U.S.C. 103. These factual inquiries are summarized as follows:

5             (A) Determine the scope and content of the prior art;  
6             (B) Ascertain the differences between the prior art and the claims at issue;  
7             (C) Resolve the level of ordinary skill in the pertinent art; and  
8             (D) Evaluate any indicia of nonobviousness.  
9

10       However, in order to make a proper comparison between the claimed invention and the prior art,  
11       the language of the claims must first be properly construed. See In re Paulsen, 30 F.3d 1475,  
12       1479 (Fed. Cir. 1994). See also, Panduit Corp. v. Dennison Mfg. Co., 810 F.2d 1561, 1567-68  
13       (Fed. Cir. 1987) (In making a patentability determination, analysis must begin with the question,  
14       "what is the invention claimed?" since "[c]laim interpretation, ... will normally control the  
15       remainder of the decisional process.") See Gechter v. Davidson, 116 F.3d 1454, 1460 (Fed. Cir.  
16       1997) (requiring explicit claim construction as to any terms in dispute).

17  
18       Upon reviewing the Examiner's analysis in view of the requirements discussed above  
19       necessary for the Examiner to establish a prima facie case of obviousness, Appellants recognize  
20       several deficiencies in the Examiner's analysis.  
21

---

22  
23       Prior to addressing the substance of the Examiner's arguments, Appellants note that in the  
24       Second Office Action, the Examiner also rejected claims 7-14 under 35 U.S.C. § 103 for  
25       obviousness based upon Mangipudi in view of Yang. This rejection was traversed on pages 9-11

1 of the First Appeal Brief dated July 11, 2008. In the present Third Office Action, the Examiner  
2 again rejects claims 7-14 under 35 U.S.C. § 103 for obviousness based upon Mangipudi in view  
3 of Yang. However, the Examiner has slightly modified the rejection by acknowledging that the  
4 primary reference of Mangipudi fails to teach a particular claimed limitation within claim 7  
5 while relying upon Yang to teach this limitation.

6

7 Specifically, the Examiner is now asserting in the Third Office Action that Mangipudi  
8 fails to teach "retrieving at least two sets of hit rate metrics, each set of metrics corresponding to  
9 a particular routing policy." Since the Examiner is only relying upon the combination of  
10 Mangipudi and Yang, Appellants proceed on the assumption that the Examiner is relying upon  
11 Yang to teach these limitations. However, of particular interest is the Examiner's  
12 characterization of Yang within the Third Office Action. Specifically, the Examiner asserted the  
13 following on page 6 of the Third Office Action:

14 However, in an analogous art, Yang teaches identifying the machines in the cluster and their  
15 memory space (cache allocation). Yang further teaches monitoring and tracing (trace footprint)  
16 web traffic of the server cluster for four months. Characteristics (hit rate metrics) of the URL  
17 requests are used to evaluate processing time. These measurements and results are stored in the  
18 URL table and used to make routing decisions (paragraphs [0017, 0027, 0033, 0046-0047, 0049]).  
19

20 This characterization of Yang is of interest in that the Examiner employed the exact same  
21 characterization of Yang on page 8 of the Second Office Action. Notably absent from this  
22 characterization is any identification, within Yang, of the claimed "retrieving at least two sets of  
23 hit rate metrics, each set of metrics corresponding to a particular routing policy." Appellants  
24 have also reviewed the Examiner's cited paragraphs [0017], [0027], [0033], [0046]-[0047], and  
25 [0049], and absent from these passages is any mention of the claimed "retrieving at least two sets  
26 of hit rate metrics, each set of metrics corresponding to a particular routing policy." Thus, since  
27 the Examiner has admitted that Mangipudi fails to teach the limitations at issue and the Examiner

1 has failed to identify, within Yang, the passages that allegedly teach these limitations, the  
2 Examiner has failed to establish a prima facie case of obviousness.

3

4 The Examiner is also relying upon Yang to teach the claimed "identifying a  
5 contemporary trace footprint experienced by a coupled server cluster." The only mention of  
6 "trace" is found in paragraph [0047], which describes "the packet level traces (by tcpdump) of  
7 the web traffic had been collected to and from our server system for about four months." Packet  
8 level traces that have been collected for about four months does not teach the claimed  
9 contemporary trace footprint.

10

11 The Examiner also relies upon Yang to teach the claimed "comparing said hit rate metrics  
12 based upon said identified trace footprints and said identified cache allocation to determine a  
13 preferred routing policy." Not only does Yang fail to teach the claimed hit rate metrics or trace  
14 footprint, Yang also fails to teach determining a preferred routing policy based, in part, on  
15 identified cache allocation. In fact, the term "cache" is completely absent from Yang. Moreover,  
16 the passages within Mangipudi cited by the Examiner to teach the claimed "cache allocation"  
17 also does not refer to cache. Although these passages refer to memory, memory (or memory  
18 utilization) does not necessarily (i.e., inherently) refer to cache (or cache allocation). Therefore,  
19 the Examiner has failed to properly determine the scope and content of both Mangipudi and  
20 Yang.

21

22

1           Conclusion

2         Based upon the foregoing, Appellants respectfully submit that the Examiner's rejection  
3         under 35 U.S.C. § 103 based upon the applied prior art is not viable. Appellants, therefore,  
4         respectfully solicit the Honorable Board to reverse the Examiner's rejection under 35 U.S.C. § 103.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due under 37 C.F.R. §§ 1.17, 41.20, and in connection with the filing of this paper, including extension of time fees, to Deposit Account 09-0461, and please credit any excess fees to such deposit account.

Date: November 30, 2008

Respectfully submitted,

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**VIII. CLAIMS APPENDIX**

7. An autonomic request routing policy selection method comprising the steps of:
  - identifying a contemporary trace footprint experienced by a coupled server cluster;
  - identifying a cache allocation for said coupled server cluster;
  - retrieving at least two sets of hit rate metrics, each set of metrics corresponding to a particular routing policy;
  - comparing said hit rate metrics based upon said identified trace footprint and said identified cache allocation to determine a preferred routing policy; and,
  - selecting said preferred routing policy for use in routing content requests to said server cluster.
8. The method of claim 7, further comprising the steps of:
  - computing with said hit rate metrics, an optimal server cluster configuration for said preferred routing policy; and,
  - provisioning an optimal number of servers in said server cluster based upon said computed optimal server cluster configuration.
9. The method of claim 7, wherein said selecting step comprises the step of selecting a server load balancing type routing policy when said identified cache allocation approaches in value said identified trace footprint.

10. The method of claim 7, wherein said selecting step comprises the step of selecting a content localizing type routing policy when either said identified cache allocation is small, or when said trace footprint is large.

11. A machine readable storage having stored thereon a computer program for autonomic request routing policy selection, the computer program comprising a routine set of instructions which when executed by the machine cause the machine to perform the steps of:

- identifying a contemporary trace footprint experienced by a coupled server cluster;
- identifying a cache allocation for said coupled server cluster;
- retrieving at least two sets of hit rate metrics, each set of metrics corresponding to a particular routing policy;
- comparing said hit rate metrics based upon said identified trace footprint and said identified cache allocation to determine a preferred routing policy; and,
- selecting said preferred routing policy for use in routing content requests to said server cluster.

12. The machine readable storage of claim 11, further comprising the steps of:  
computing with said hit rate metrics, an optimal server cluster configuration for said preferred routing policy; and,  
provisioning an optimal number of servers in said server cluster based upon said computed optimal server cluster configuration.

13. The machine readable storage of claim 11, wherein said selecting step comprises the step of selecting a server load balancing type routing policy when said identified cache allocation approaches in value said identified trace footprint.

14. The machine readable storage of claim 11, wherein said selecting step comprises the step of selecting a content localizing type routing policy when either said identified cache allocation is small, or when said trace footprint is large.

**IX. EVIDENCE APPENDIX**

No evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132 of this title or of any other evidence entered by the Examiner has been relied upon by Appellants in this Appeal, and thus no evidence is attached hereto.

**X. RELATED PROCEEDINGS APPENDIX**

Since Appellants are unaware of any related appeals and interferences, no decision rendered by a court or the Board is attached hereto.